



**The Bombay Salesian Society's
Don Bosco Institute of Technology, Mumbai 40070
(An Autonomous Institute Affiliated to Mumbai
University)**

Department of Electronics & Telecommunication

Course Code: 25ET4CEP02 Course Name:

Community Engagement Project 2

Smart Irrigation System

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Problem Statement & Community Context



Farmers waste water or under-irrigate crops due to lack of soil moisture monitoring



Problem occurs in rural agricultural fields and small farms

Faced by small and medium-scale farmers



Observed through field visits and interaction with farmers

Problem analysis and SDG alignment

Root Causes:

- Irrigation is done manually without proper monitoring.
- No system to measure real-time soil moisture.
- Lack of automation in farming practices.

Existing Solutions

- Existing solutions include manual checking and fixed-time irrigation.
- These methods rely on guesswork rather than accurate data.

Current Limitations

- Leads to water wastage and higher electricity cost.
- Manual irrigation is time-consuming, hence increases labour cost and reduces efficiency.



Proposed Solution

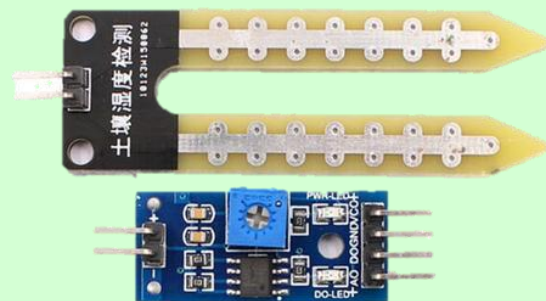
A Smart Irrigation System automatically controls water supply to crops using soil moisture and environmental sensors. It ensures irrigation only when needed, reducing water wastage and improving crop health. The system can also be monitored and controlled remotely using IoT technology.

Tools Used:

ESP32



Soil moisture



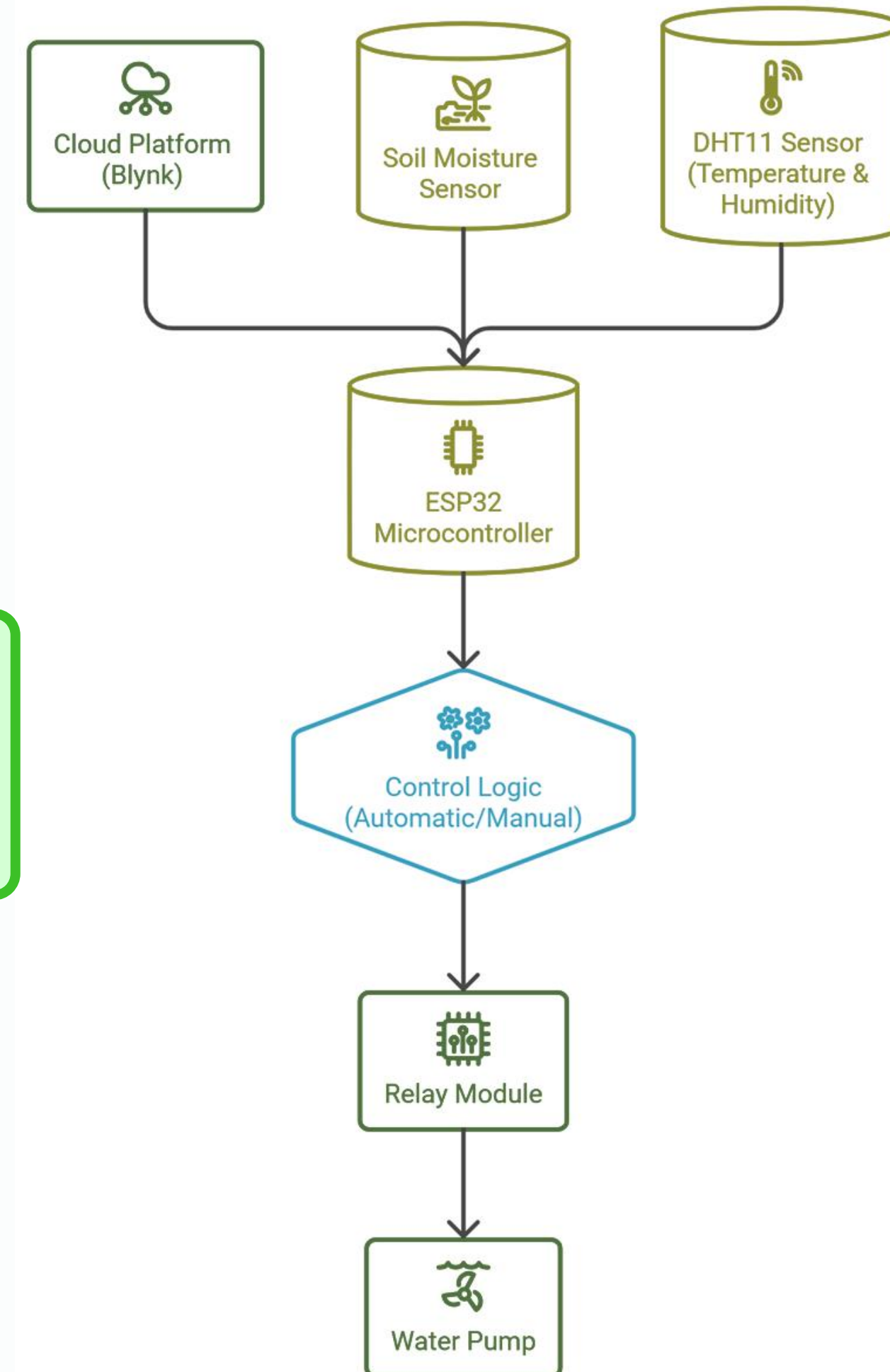
Water pump



Temperature & Humidity detector



Relay Module



“Agriculture” the Backbone of Nation

2nd

largest agricultural
producer in the world

**₹52 lakh
crore**

GVA is estimated (2025–26)

~4–5%

Annual growth in recent
years

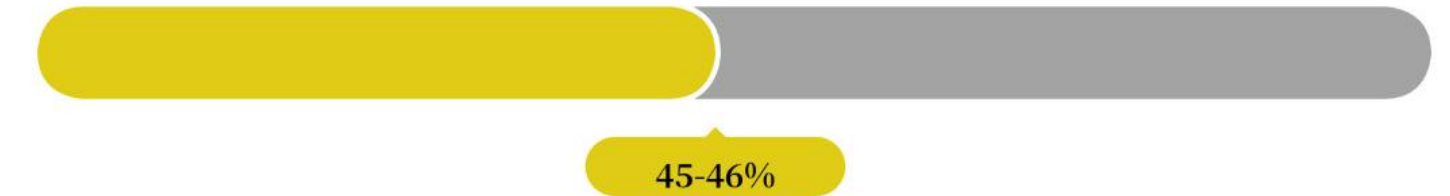
2515_{LMT} to 3577_{LMT}

Foodgrain production increased from 2015-16
to 2024-25

Economic Contribution to GDP



Workforce Employed in Agriculture



Rural Households Rely on Agriculture



Farming Depends on Monsoon Rains



Water Savings through Better Irrigation



Indian Agriculture sector 2024-25

References

- ❑ Government of India Agriculture Portal: <https://www.india.gov.in/category/agriculture-rural-environment>
- ❑ Economic Survey 2025–26 (Agriculture Sector): https://upstox.com/news/business-news/economy/economic-survey-2025-26-agriculture-sector-faces-climate-water-challenges-despite-growth/article-188518/?utm_source
- ❑ Agriculture Contribution to GDP 2025 (India Trends): https://farmonaut.com/asia/agriculture-contribution-to-gdp-2025-india-trends?utm_source
- ❑ Annual Report 2024–25 (Ministry of Agriculture): https://agriwelfare.gov.in/Documents/AR_Eng_2024_25.pdf?utm_source
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Thank You

